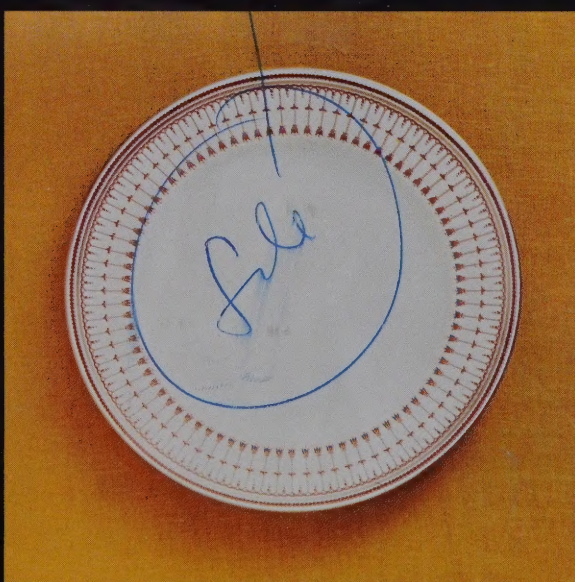
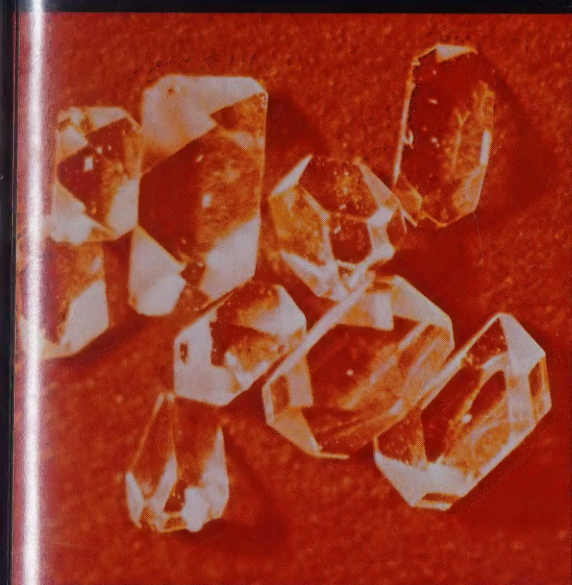




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# Highlights of Carborundum's 1966 Annual Report

## *The President's Letter*

page 2

Carborundum defined, "a producer and marketer of specialized materials and material systems." Independence and inter-relation of Company's businesses, and techniques for managing them.  
Record 1966 performance.  
Outlook promising.

The covers depict some of the means by which Carborundum has grown during the year through new facilities, acquisitions and expanded application of various technologies.

Front Cover: Crystals of hydrothermally grown beryllium oxide illustrate the technical capabilities acquired through the purchase of Tem-Pres Research.

The spools of yarn are used by Lockport Felt in making felts for the paper industry.

The large Pangborn dust collector is one of several types being marketed for industrial air pollution control systems.

The Kensington pattern dinner plate is an example of Spode fine bone china produced by W. T. Copeland & Sons, Stoke-on-Trent, England.

## *New Facilities, Acquisitions and Investments*

page 5

Capital additions double previous high.  
Major plants for graphite and fibers. Expanded capacity and new equipment for other products. Several significant acquisitions.  
Overseas expansion.

Back Cover: Ceramic composite armor is shown ten microseconds after bullet impact (U. S. Army photograph courtesy of the Army Material Research Agency).

A wide belt abrasive system for stainless steel grinding is now in operation in Terni, Italy.

Customers listened intently at the International Furniture and Woodworking Supply Fair to an explanation of abrasive planing, a new woodworking process.

The massive piece of equipment is a graphite extruder for the new plant at Hickman, Kentucky.

## *Marketing and Technical Review*

page 13

Concentration of marketing and technical capabilities on major profit opportunities.  
Efforts in major markets explained.

Right: Carbon yarn is one of the Company's growing family of high temperature fiber materials. Major uses include aerospace applications and packing materials for chemical pumps.

## *Personnel and Organization*

page 22

Some organizational philosophies and management techniques. No strikes in 1966.  
Executive appointments.

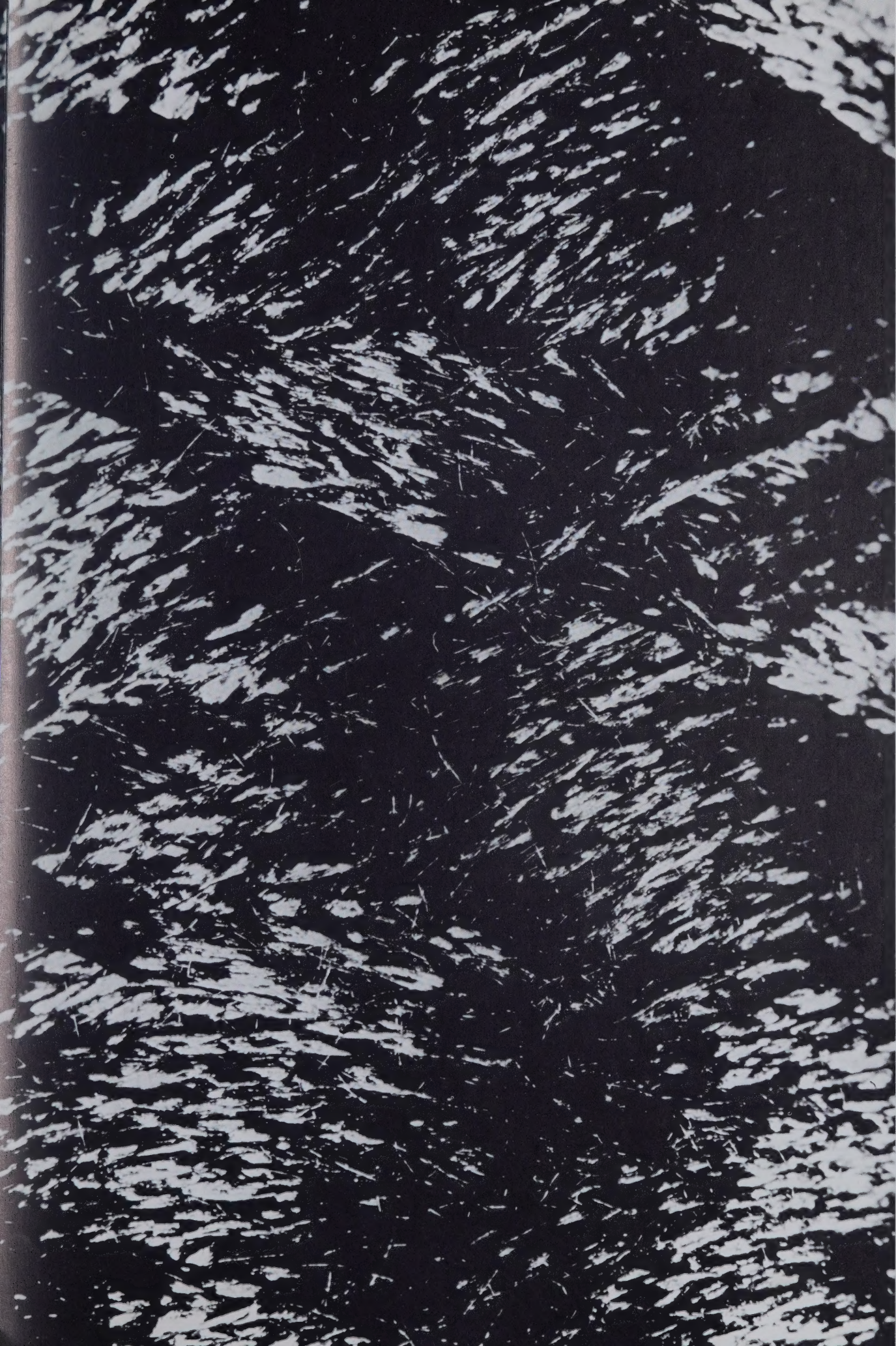
## *Financial Record*

page 25

Operations and balance sheet analyzed.  
Audited statements of consolidated income, balance sheet and funds flow presented.

Annual Report for the year  
ended December 31, 1966  
The Carborundum Company  
Executive Offices  
Niagara Falls, New York





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## The President's Letter

### *Carborundum Defined*

The character of Carborundum has been undergoing and will continue to undergo major and rapid changes. Some of these changes result from external economic, technological and political conditions; more frequently, they stem from internal developments in products, plants, people, policies and plans.

Only by precise definition of a company, particularly in times of great change, can its goals be established and achieved. The Company's 1967 program defines the nature of its business: "Carborundum is a producer and marketer of specialized materials and material systems, serving many markets, using diverse manufacturing processes, employing various scientific disciplines. Its scope is both multi-national and multi-industry. It is integrated from raw materials to finished form. It is decentralized with each profit center inter-related with many others. Its objectives are fast growth, high profits and challenging and rewarding employment opportunities."

"Specialized materials and material systems" is best illustrated by an example—silicon carbide. A new form of matter invented only 75 years ago, silicon carbide's chief use is in abrasives, alone or in systems using grinding wheels or coated abrasives. In hundreds of types and forms, however, it also serves as a refractory, a metallurgical additive, a wear resistant material, an armor plate for aircraft and personnel, a heating element, a catalyst carrier, a specialized insulator, a filter, an electrical resistor, and experimentally as a fuel in basic oxygen furnaces, a diode or a structural reinforcement. New applications involving many technologies are being uncovered at an accelerated rate. Other basic materials produced by the Company, such as aluminum oxide and graphite, have equal versatility and promise.

Carborundum consists of many relatively small independent businesses, each inter-related with many others.

Because the general manager of each business has all the resources and tools required, technology and marketing are easily

coordinated. The initiative for innovation may come from marketing by foreseeing a need or from technology by making a discovery. To translate either innovation into profit requires prompt interaction between the two.

Because of the inter-relation of each business with many others, communication and cooperation among them are vital. Many techniques are used to achieve this objective such as group executives; a functional staff; a product staff consisting of domestic operating divisions, all with world-wide responsibility; technical seminars; marketing plans; quantified divisional and personnel objectives; and periodic reviews of divisional activities. The 1967 program lists 268 intra-Carborundum assistance projects wherein each division commits itself to help others by rendering a non-routine service.

By these means, the Company can be greater than the sum of its parts. For this reason, all activities for growth—internal or external—must relate in some way to capabilities in marketing, technology, manufacturing methods or raw material source. This policy sets no limit on what Carborundum might become; it does control how it might get there.

### 1966

Sales and earnings records were again established. Gains were 14% over 1965 in both categories. Return on net worth improved from 11.2% to 11.8%, while return on sales remained at 6.6%. The modest decline in gross margin ratio reflects the high level of activity, close to capacity in several plants, and inflated raw material and personnel costs. Taxes declined as a percentage of income. For the 14th consecutive quarter, or since mid-1963, quarterly profits exceeded those of the same period in the previous year.

Funds required exceeded \$47 million, \$23.1 million coming from profits and depreciation and \$16.6 million from loans. Working capital increased 7%, inventories 20% and accounts receivable 16%. Capital additions were a record \$27.1 million. The previous high was \$12 million in 1963. Cash and marketable securities declined





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about \$1 million, while net worth increased almost \$11 million.

The dividend rate was again increased, by 8%. In four years the increase has been 63%.

For the fourth consecutive year an award was received for an outstanding technical development, a ceramic cutting tool. Carborundum with 7 awards ranks eleventh among all companies in number of awards received.

Non-consolidated subsidiaries, carried as investments, had record sales and profits. Balance of payments were well within the stipulations established by the federal government.

A number of acquisitions were consummated. The most significant were Lockport Felt Company, Tem-Pres Research, Inc. and W. T. Copeland & Sons Ltd.

Lockport manufactures woven felts for the paper industry. Their expertise in textiles will allow Carborundum to fabricate its wide range of inorganic fibers, for which a new

plant has been constructed.

Tem-Pres is a research and development company working primarily with materials formed or applied in high temperature and high pressure environments. Its close association with the academic community will stimulate investigation of new areas of technology with great potential.

Copelands manufactures world-famous Spode fine bone china and earthenware. Carborundum's ceramic know-how will help to increase yields and improve physical characteristics, and its experience with computers will improve inventory control.

#### *Outlook*

The near term outlook for Free World economies, particularly in the United States, is more difficult to predict than for any recent period. Inflation, war, civil strife, realignment of nations, fluctuating interest rates, undetermined fiscal policy, all contribute to uncertainty.



With modest growth in the economy, the most popular prediction, and the opportunities resulting from the high 1966 capital expenditures, Carborundum expects gains for 1967. However, the Company has detailed plans, based on varying degrees of recession, to mitigate the effects of any declines. Necessarily, the plans vary considerably among divisions, as will the timing of their execution, since one business may decline while another gains. Regardless of the level of activity, the need for rigid control of costs in 1967 is certain.

Additional intermediate or long-term loans will be required in 1967. Capital expenditures will continue at a high level. Further acquisitions for cash are expected. One has just been consummated with the purchase of approximately 90% of the stock of Commercial Filters Corporation.

Similar to Carborundum, Commercial Filters is involved in systems. These consist of equipment and replaceable filtering media for all types of gases and liquids. The systems are used in air and water filtration, chemical processing, petroleum refining, industrial waste control, aerospace and food processing. Its activities are related to those of many Carborundum divisions, particularly Pangborn's dust and fume control, where increasing emphasis will be placed in 1967. Many fibers and other resistant materials with high temperature and pressure characteristics should find application in filtration.

Never in the history of the Company have there been so many projects with exciting growth and profit potential. In part this results from favorable long-term economic conditions, in part from the proliferation of science common to many companies, and in part from the diversity of the Company's expertise.

Much of Carborundum's capability lies in uncovering new materials with new qualities, in new forms and systems, for new applications. Recently, at a symposium conducted by a leading university, it was said: "Man's knowledge and application of materials is the cornerstone of human progress and prosperity. Materials affect every aspect of the human condition . . .

What man can accomplish is determined in part by his command of materials."

The prospects are exciting; handled properly they will be profitable.

For the Board of Directors



William H. Wendel  
President

February 14, 1967



# New Facilities, Acquisitions and Investments

The successful expansion of existing markets and the development of new markets and new products taxed the capacity of many plants. New facilities to alleviate this condition, plus major acquisitions and investments in associated companies, resulted in capital additions double the previous high.

## Major Projects

Initial shipments of electrodes for the steel industry, anodes for the chemical industry and graphite mold stock will be made in the first quarter of 1967 from Hickman, Kentucky. This plant employs the latest extrusion and furnacing equipment and an automated process control system to assure precise product reproducibility. Certain key elements of the plant are over-capacitated to facilitate expansion.

Capacity for the production of graphite and carbon yarn and cloth was doubled in 1966 and will be doubled again by mid-1967.

The Company's new fibers facility is now in operation, and will become the nucleus for further development and production of silicon carbide whiskers, boron nitride fibers and other high temperature inorganic fibers. It also houses laboratory facilities for high strength or high temperature composite materials consisting of fibers and metallic, ceramic or plastic matrices.

Complete modernization and major expansion of Pangborn's steel abrasive plant was completed.

Canadian Carborundum Company started a multi-million dollar renovation and expansion program for grinding wheels.

Construction began on a refractories manufacturing facility in Germany which will become a major supply source for the Common Market in 1967.

Carborundum's two joint ventures in the United States expanded substantially. Harbison-Carborundum's new facility at



The Hickman, Ky., plant of Graphite Products Division will be in full scale production in the spring of 1967.

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New Carlisle, Indiana, to produce fused cast basic refractory shapes and grain for the steel industry, will commence production this spring. A new company, Toshiba Monofrax, owned 49% by Harbison-Carborundum, began production of fused cast refractories in Tokyo. The main plant of Harbison-Carborundum in Falconer, New York, for fused cast refractories for the glass industry, is undergoing major expansion.

Carborundum Metals Climax, a producer of zirconium and hafnium, has completed its initial tube mill installation and has produced satisfactory product. The rolling mill is in place and undergoing shake-down. Backlog has increased more than twenty-fold, posing the normal problems inherent in this degree of growth. This company is still in a loss position, but with obviously improved prospects a result of the phenomenal expansion of commercial nuclear power.

In the United States Carborundum also:  
 Purchased a disc varistor assembly machine for Refractories and Electronics.  
 Built a raw material dryer for silicon carbide for Electro Minerals.  
 Increased computer capabilities.  
 Extended the midwestern district distribution center.  
 Started modernization of a steam generating plant, incorporating advanced experimental dust control apparatus made by Pangborn.  
 Expanded and modernized the Refractories and Electronics mold shop.  
 Moved Refractories and Electronics engineering, development and quality control functions into a new technical center and began a major addition to the technical ceramics plant.  
 Began final testing of an automatic central batching and mixing plant for vitrified grinding wheels.  
 Expanded facilities, and product line to include pumps, of Process Equipment Division.  
 Installed additional automatic lines for the manufacture of coated abrasive belts.  
 Began production of silicon carbide grain and Ferrocarbo briquettes in the new Electro Minerals geodesic dome building.

And Overseas:

In Norway, installed a furnace unit for increased capacity of silicon carbide.  
 In Mexico, India and South Africa, started refractories production.  
 In India, started production of aluminum oxide.  
 In Puerto Rico, began manufacture of "KT" silicon carbide.  
 In Italy, started manufacture of belt sanding machines and increased capacity for Pangborn equipment.  
 In South Africa, commenced fabrication of Pangborn equipment and installed facilities for resinoid diamond wheels.

### *Acquisitions and Investments*

A significant development of 1966 was the acquisition of Lockport Felt Company, Newfane, New York. Founded in 1891, the same year as Carborundum, Lockport Felt is the third largest manufacturer of paper machine felts in the United States. These felts are endless woven belts of woolen and synthetic fabrics used on paper machines in the drying process. Similar to abrasives, paper machine felts are consumptibles where quality control and service are paramount.

Lockport Felt's weaving technology is providing valuable assistance in developing finished fiber products from the Company's high temperature inorganic fibers. Opportunities exist for the expansion of Lockport's products into other markets. For example, they may manufacture dust collection bags for Pangborn equipment.

Tem-Pres Research, State College, Pennsylvania, provides important intermediate and long-range opportunities for developments from high temperature, high pressure research, increased activities with defense and aerospace agencies and contractors, and commercial exploitation of technological fallout from such research. Its staff members rank among the leading investigators in their fields. Their close association with the academic community will help alert Carborundum to significant new scientific discoveries. Tem-Pres has established commercial markets, primarily

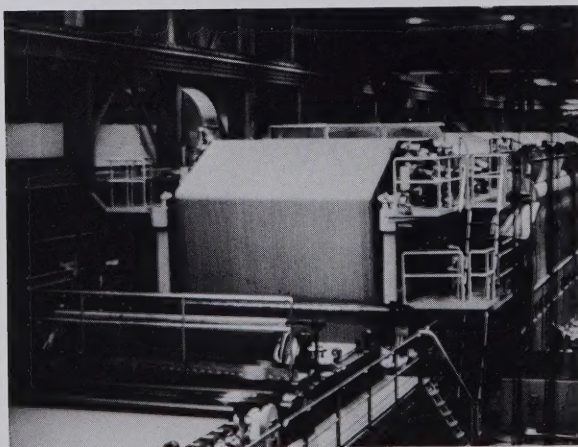
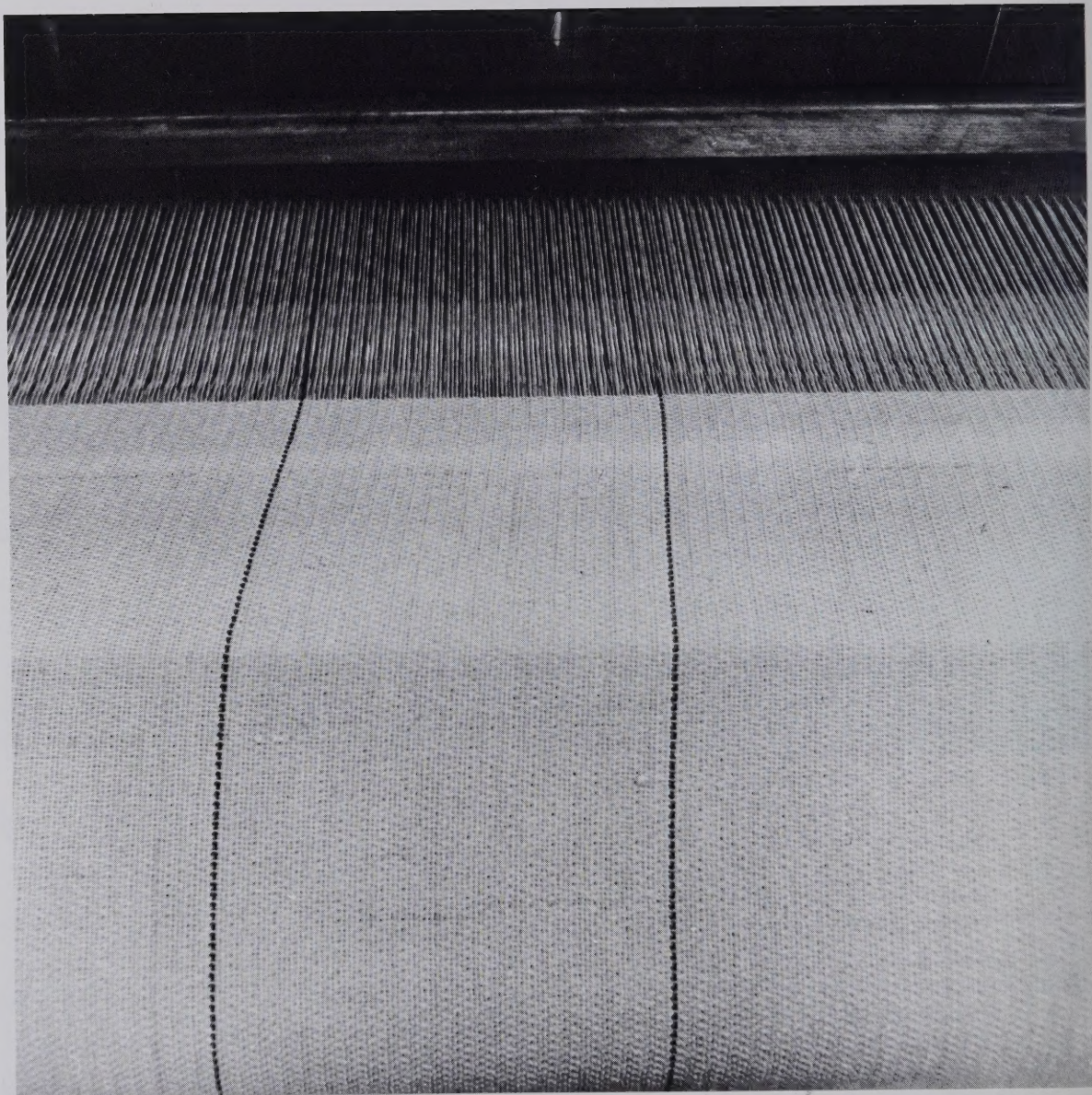




*European demands for refractory products of various kinds will be supplied from a new facility now nearing completion in Dusseldorf, Germany (above).*

*Carborundum machines of many types will be manufactured in the newly expanded facilities of Pangborn Europe in Milan, Italy (right).*





Paper machine felts are manufactured on wide looms at Lockport Felt Division (above). A felt is shown in use on a papermaking machine in the small photograph at left.



scientific laboratories, for a number of sophisticated control and measuring devices.

Although Tem-Pres is wholly-owned, its management reports to a Board of Directors in order to preserve its independent character and encourage its venture into areas of new technology.

The acquisition of W. T. Copeland & Sons Ltd. must rank as Carborundum's most imaginative acquisition. It meets two important criteria—"fit" with other activities of the Company, and a consumer product with a brand image second to none. Copelands manufacture Spode English bone china and other fine dinnerware.

Spode bone china, stoneware and earthenware are distributed internationally. Spode's reputation for quality and design is unexcelled. For generations, special designs have been supplied to distinguished persons and royalty. Early Spode ware is highly valued by collectors.

The area of technology most common to Carborundum's varied activities is ceramics. Vitrified grinding wheels, refractories, heating elements, electronic components, porous media, wear-resistant parts, vibratory nuggets, substrates and others involve ceramic know-how. This know-how will help to increase yields in fine china and to improve physical characteristics. Carborundum's experience in inventory control, particularly with computers, will have application with the wide variety of shapes and designs of chinaware.

The name Spode, the quality of Spode ware, and its priceless tradition and image will be retained and enhanced in the years to come.

By February 14, 1967, Carborundum had purchased approximately 90% of Commercial Filters Corporation for about \$8.8 million. This acquisition is the result of an intensive study of the filtration business because of the growth prospects and the relationship with other activities of the Company. For instance, paper machine felts act as a filter, separating water from fibers. Bag type dust collectors separate contaminants from hot exhaust. Vitrified porous media are used to remove effluent from water. New inorganic fibers may find



*Crystals grown under high temperature, high pressure conditions represent one aspect of the capability acquired with Tem-Pres Research.*



application in high temperature and corrosive and abrasive environments. Commercial Filters makes a wide variety of types of equipment and filtering media for all types of gases and liquids for use in air and water filtration, industrial waste control, aerospace, chemical and food processing and petroleum.

Commercial Filters reported sales in the fiscal year ended July 31, 1966 of \$14,190,000 and net income from operations of \$516,000 before a non-recurring gain resulting from the sale of patents of \$581,000 for a total of \$1,097,000. Shareholder equity at the close of the fiscal year was \$6,254,000.

Carborundum also purchased the facilities of a small company, Metal Pumping Services. This company makes pumps for moving molten aluminum with potential with other metals. The materials used are graphite and refractory products, resin-impregnated similar to the techniques used by Process Equipment Division, of which it will become a part.

For many products, greatest growth prospects exist in Europe, Latin America and the Far East. The needs of these emerging markets are the subject of a planned program of expansion, acquisition, investment and licensing.

Carborundum France S.A., a marketing subsidiary, acquired Societe Anonyme des Meules Artificielles, near Grenoble, France, manufacturers of bonded abrasives, primarily for the French and Italian markets.

The Company also purchased:  
One-third interest in Nippon Coated  
Abrasives Company.

Mitchell Grinding Wheel Company of  
England, in February 1967.

A 50% interest, with options up to 100%,  
in Industrias Abrasivas S.A., Valencia,  
Spain, grinding wheel manufacturers.

And appointed licensees:

In Australia, to manufacture Pangborn  
equipment.

In Venezuela, for bonded and coated abrasives  
with options for eventual purchase.

Arrangements have been made to purchase:  
John Oakey & Sons Ltd., coated abrasive  
manufacturers in Australia.

A 67% interest in Flexible Abrasives Ltd.,  
coated abrasive manufacturers in  
New Zealand.

An additional 58% interest in Fabrasa,  
bonded abrasive manufacturers in  
Argentina, of which 20% is currently owned.

K. L. Lange & Co., an abrasive distributor  
in Denmark, which will be operated under  
the same management as Carboscan, the  
marketing subsidiary in Norway.





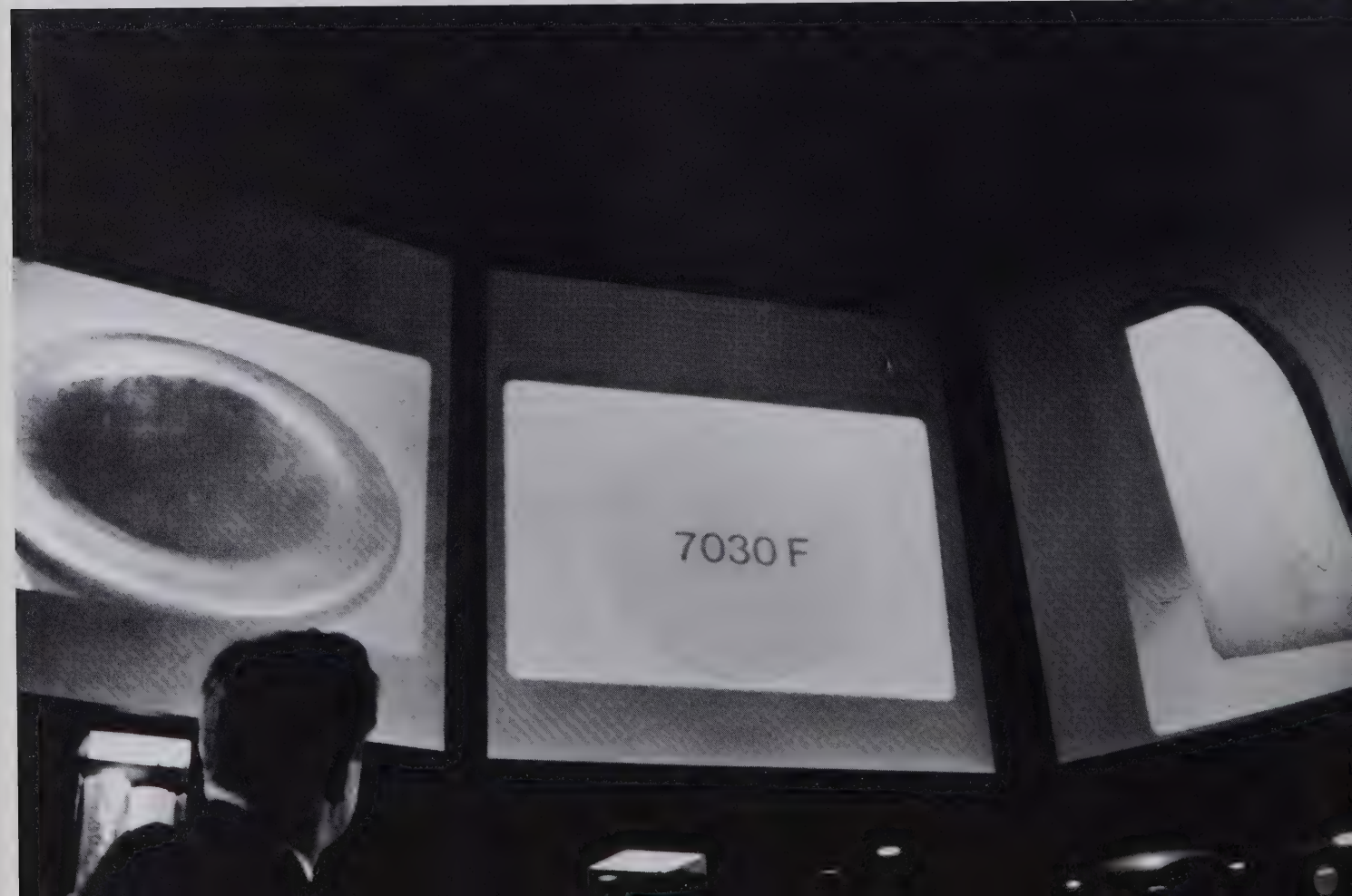
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*Consul, an elegant Spode China pattern with a band of cobalt blue and a gold edge. A formal design with simplicity and delicacy, it is a correct combination for today's dining.*







## Marketing and Technical Review

A basic policy of Carborundum is the concentration and coordination of marketing and technical capabilities on major profit opportunities. These usually occur when technological or economic changes in a major industry make existing methods, processes or facilities obsolete. These changes are opening new applications for Carborundum's advanced materials, electrical and electronic components, process equipment, abrasive systems and consumptible supply items.

The Marketing Division and the Research and Development Division, with the parallel groups of the operating divisions and subsidiaries, are responsible for anticipating changes through study of industrial processes and economic trends. When an impending change is detected, these groups are expected to contribute to it, accelerate it, and even help direct it through the application of the Company's technical knowledge.

In 1966 major marketing actions were directed at areas of opportunity in a number of key industries. Most of these actions included corporate team-selling and market-oriented promotional programs. Most were multi-divisional, multi-product and multi-technological, and many were international in scope.

### Aerospace

In no other market is change more rapid and demanding than in aerospace. There is a constant search for materials with greater strength, less weight or more resistance to heat, shock or corrosion. This process of continuous change creates sales opportunities for resistant materials and contract research. Carborundum products are officially qualified for use in numerous missile and rocket programs. The Surveyor space vehicle which

*Trade shows and industrial expositions provide an excellent means by which the divisions and subsidiaries of Carborundum can promptly communicate new products, new machines, and new ideas and methods to important consuming industries. Six divisions and three subsidiaries of the Company participated in the Foundry Show, Cleveland (above) and the Aerospace Show, Boston (below).*

landed on the moon contained Graph-I-Tite G-90. This material has also been used in the Minuteman and advanced Syncom, and is qualified for the Voyager and Nike Zeus. Another material, "KT" silicon carbide, is used for the attitude control nozzles in the Gemini and Apollo.

Carborundum's aerospace materials include a number of inorganic fibers. Among these are graphite yarns and textiles, practically immune to thermal shock, which have qualified for the 120 inch booster, the advanced Syncom, Adobe and Pershing second stage. The Company's original fibrous material, Fiberfrax, serves the insulation needs of the aerospace industry in a variety of applications from vacuum formed insulation for jet engine components to the lining of giant furnaces for brazing rocket engines.

Lightweight ceramics are used in personnel armor presently being supplied to U.S. military forces. Ceramic materials are capable of withstanding direct hits by small arms fire.

An increasing number of complex aerospace requirements are also being met through Carborundum research in advanced types of ceramic cutting tools, carbide-graphite composites, boron nitride fibers and silicon carbide whiskers.

### Steel

The steel industry is undergoing rapid change, affording a receptive market for product and process improvements in virtually every area of production. In 1966 Carborundum products were utilized from one end of the steel making process to the other.

Ceramic wear materials are employed in the chutes, conveyors, bins and tables that feed the furnaces; at the other end, coated abrasive belts give stainless steel its final luster. In between are bonded snagging wheels and cut-off wheels mounted on Tysaman machines in the conditioning area, Process Equipment Division products in the pickling process, Pangborn Rotoblast machines for descaling plates and billets, and, overhead, dust and fume collectors to keep the atmosphere clean and safe.



All units of the Company marketing to the steel industry participated in a highly successful exhibit at the Iron and Steel Exposition. A live demonstration of hot steel cut-off with a newly designed Step Cut machine and bonded abrasive wheel proved to be a high spot. Carborundum is the only company producing cut-off wheels in the 48 to 60 inch diameter range, and Tysaman manufactures the world's largest horizontal stroke cut-off machines. Applications for advanced materials such as Carbofrax, 1542 Alumina, Refrax and Fiberfrax were also demonstrated.

Three large steel producers have installed Carborundum systems for conditioning carbon steel, replacing chipping and flame scarfing with Tysaman equipment and bonded abrasives.

Tysaman installed a Mark 100 grinder at another company, the first in the world designed for hot conditioning of billets and slabs. Two of these machines are scheduled for delivery to steel producers in Italy.

Pangborn completed a Rotoblast machine to clean the world's widest steel plates. Two automatic systems to descale steel bars, and the first of two systems to descale pressure cast slabs were also installed. Sales of air pollution control equipment for electric furnaces were double those of the previous year.

The Company is building a five-head coated abrasive grinder and polisher for steel strip. This machine, in which the grinding pressure is servo-controlled, is the largest ever produced by the Coated Abrasives Division.

Graphite Products Division will become a volume supplier of electrodes to the steel industry through its facility at Hickman, Kentucky.

### *Electronics*

To the electronics industry, reliability of the finished product, whether a home appliance or an industrial installation, means precision component parts and specialized materials for production processes.

Carborundum's accurately manufactured electronic components, including varistors

(voltage sensitive resistors) and thermistors (temperature sensitive resistors), kept pace with the color television market as domestic production nearly doubled over 1965. The Company's alumina substrates were used extensively in the production of hybrid and thick film microcircuits.

For the first time, Fiberfrax ceramic fiber products penetrated the electrical appliance field. A new outlet for this material, to replace mica in a toaster, was particularly successful.

Among the products introduced for electronic manufacturers was a line of oxide refractory materials. The Check Mate Selector System devised for this product received excellent customer acceptance. Life Line Globar heating elements providing 50% longer life were also offered to the electronics market.

"HP" grade boron nitride, an improved electronic in-process fixturing material, was introduced.

Since superior technical advancements in electronic components have on occasion been deterred by high production costs, major research in manufacturing methods is underway.

### *Paper*

The paper industry is a good example of the application of Carborundum's resistant materials to the needs of a particular market. "KT" silicon carbide suction box covers revolutionized all previously held concepts of Fourdrinier wire life. Early in 1966, other products were added to the paper mill product line—cleaner cones, forming boards, wire guide palms and other machine wear parts. These products were introduced at the Canadian paper industry show in January, and later exhibited in New York and Stockholm.

With the acquisition of Lockport Felt, the Company gained a long-established supplier to the paper industry, and a trained sales force. While the life of many wear parts is measured in years, the life of paper machine felts is measured in weeks. The replacement rate of this product justifies frequent sales calls which provide a source of industry





Above, a ceramic cutting tool made from a new alumina composition bites deeply into metal. This material received an award as one of the 100 most promising industrial research developments of the year. Right, consolidated shipments from five U. S. plants are included in this "containerized" shipment shown leaving the port of Rotterdam for Dusseldorf, Germany.



## Diversification in Markets

As a result of the Company's diversification program, no single market today dominates the current sales volume or the potential for future growth. Markets colored green account for less than 15% of sales, markets colored blue for less than 10%, and markets colored tan for less than 5%.

## Diversification in Skills

The Company's range of skills and technologies has substantially broadened, and each skill has found application in a variety of markets. Each skill listed results in product lines (white circles) for more than one major market.

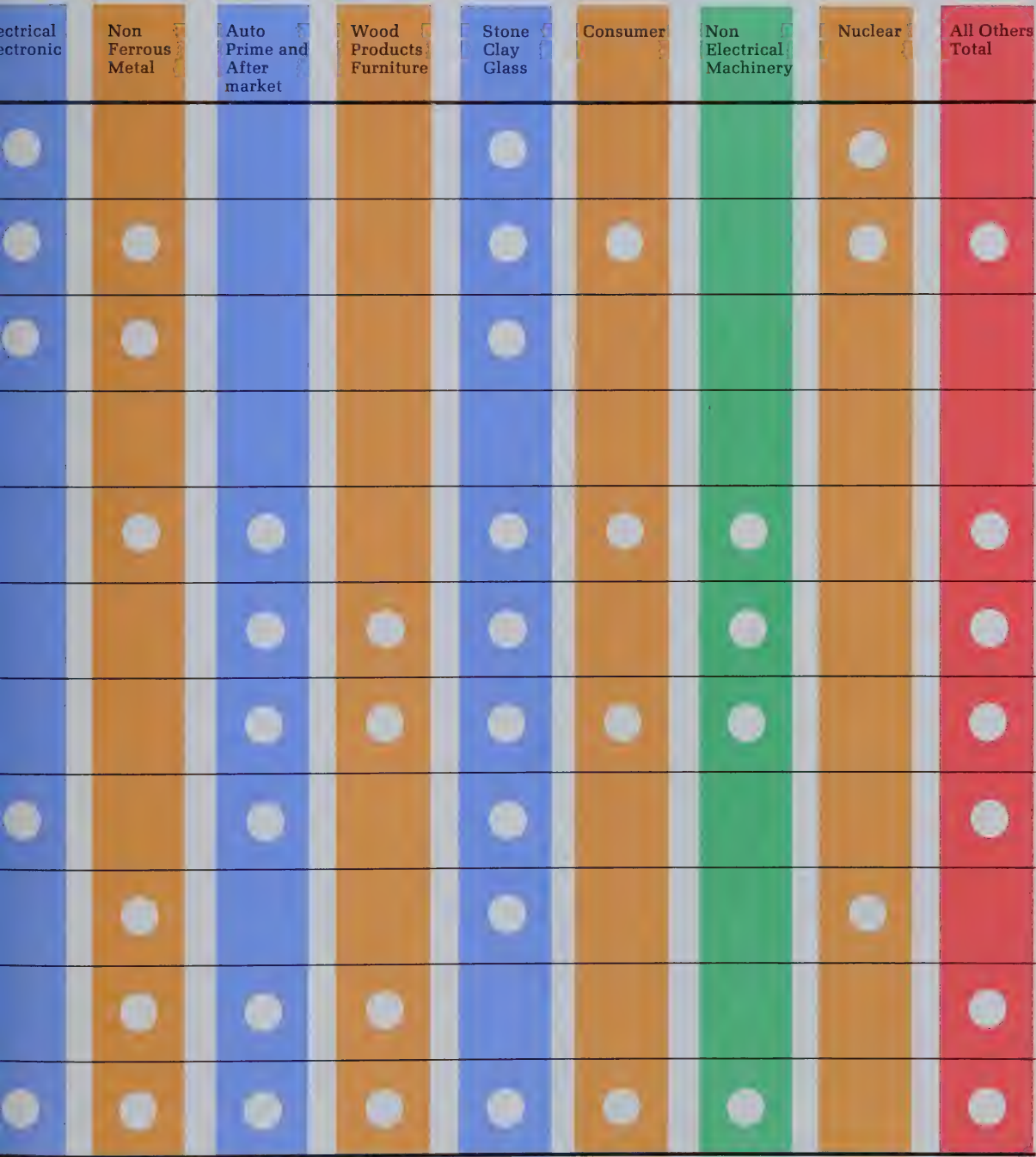
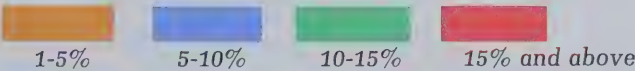
	Markets	Chemical	Foundry	Aerospace and Defense	Steel	Paper
Skills						
High Temperature Processing						
Ceramics Technology						
Inorganic Fiber Production						
Textile Design and Fabrications						
Composites Technology						
Machine and Equipment Systems Design and Assembly						
Coating Techniques						
Electrical and Electronic Technology						
Metallurgy						
Dust, Fume Control and Filtration						
Stock Removal						



Diversification in Opportunity

The Company now foresees varied prospects for growth by applying its basic technical skills or its marketing capability to additional product lines.

How to read this chart: Each white circle represents an existing product line. Circles vertically above or below it represent other products sold to the same market; circles horizontally to the right or left represent other products resulting from the same basic skills. Columns are color coded to indicate the contribution of each market to overall Company sales:







intelligence, improved communications, and corporate recognition.

Carborundum's multi-divisional, multi-product capability to serve the needs of the paper industry will be aided by the newly established Paper Equipment Project. This technical and marketing group has specialists in pulp grinding, paper mill water filtration, wear-resistant materials and refractories.

### *Woodworking*

The abrasives and machines of a generation ago are not good enough for the furniture industry of today. Higher standards of production, use of thinner veneers, increased competition from vinyl-clad materials and wood-grained plastics and better cost control have combined to lay the industry's methods and tools open to question. As a result, Carborundum abrasives and high production finishing systems are well received.

At the International Furniture and Woodworking Supply Fair, Carborundum introduced an abrasive planing machine which extends the use of coated abrasives to a new area of production. This machine features a patented fail-safe abrasive belt tracking system which eliminates manual belt adjustment. The Company also featured a double belt automatic polisher and dust collectors for the woodworking industry. These systems improve quality and reduce labor, salvage, repair and material handling costs.

### *Foundry*

Castings makers must produce more efficiently at lower cost. At the 1966 Castings Congress and Exposition, all divisions marketing to foundries displayed and demonstrated the many products

*Fiberfrax ceramic fiber, a lightweight, high temperature insulation used in markets ranging from appliances to aerospace, is made by pouring this molten mixture at about 3600° Fahrenheit and blasting it with a jet of steam.*



Carborundum offers to foundrymen in metallurgy, melting, casting, handling, conditioning, cutting and finishing.

Among the products and processes demonstrated were:

- A Tysaman foundry cut-off machine featuring the Vibra-Cut spindle.
- High speed snagging with arborless wheels.
- Two new attachments for stand grinders.
- Fiberfrax ceramic fiber of particular interest to aluminum melters.
- Carbofrax for induction furnace linings.
- A fully automated Rotoblast system with area discrimination.
- An Axi-Flow Rotoblast unit for high production blast cleaning of automotive parts.

During 1966, Pangborn delivered a blast cleaning room which can handle castings up to 200 tons. Ferrocarbo cupola deoxidizer briquettes became the first product to go into regular production under the new geodesic dome.

## Chemical

Chemical process industries are building larger, more efficient plants, employing higher temperatures, greater pressures, more virulent processes, and maximum automation. These conditions demand processing equipment and construction materials with greater thermal stability, chemical inertness and performance reliability. With its expertise in high performance refractories, ceramic fiber insulation, graphite-lined process equipment and dust control systems, Carborundum is becoming an important supplier to this market. Sales to the chemical process industry reached new highs in 1966.

Carborundum materials are being tested as refractory linings for a pilot petroleum coke generator and for a reactor producing

*Boron nitride fibers, shown above in an ablation test, have high thermal stability and other characteristics pointing to their use in improved re-entry shields. Even at high temperatures (right) they retain superior electrical characteristics for radar windows and aerospace electrical insulation. These same high temperature capabilities will find wide industrial applications in hot gas filtration, dust collector bags and reinforcements.*





synthesis gas. The first graphite anodes produced at Hickman early in 1967 will be tested by the chlor-alkali industry. Design, development and testing were completed on a new line of chemical pumps to be introduced this year.

Technical and marketing efforts are concentrated on processes involving extreme conditions. Most of these processes are operated by large, multi-product, multi-plant chemical companies with domestic and international facilities. Materials seminars, conducted at customer headquarters by a team of Carborundum's technical and marketing specialists, have been particularly successful in selling to this complex market. Late in the year, the materials seminar approach was also applied in Europe, with presentations at 40 customer locations in seven countries.

### *The Future of Abrasives*

In a study of metal cutting technology, Stanford Research Institute reports that the growth of the abrasives industry would likely

increase from 7% in the past five years to 10% annually during the next decade. The primary reason for the predicted growth is the replacement of chip cutting by abrasive machining.

*Carb-I-Tex (below) a filament-reinforced graphite developed by Carborundum, is up to twenty times stronger than regular graphite. The oxidation resistance of silicon carbide-carbon yarn (right) qualifies it for new aerospace applications.*









## *Personnel and Organization*

The Company continues to stress certain organizational concepts such as coordination and assistance among divisions, market orientation of sales activities, and presentation of total corporate capabilities to major customers. A conscious effort is made to distinguish between efficient management of today's activities and strategic planning for the future. More and more, the problem is one of allocating most efficiently the Company's resources in money, materials and manpower.

Realistic corporate goals, management by specific objectives and assignment of responsibilities with incentives for contributions made are basic policies. Advanced decision-making and planning techniques, including decision trees, operations research, PERT and systems analysis of complex problems are utilized.

The Personnel Division has been challenged to establish a climate and design a program to help the Company's people reach their capacity to achieve.

The Company is making increasing use of a variety of training and educational programs both in-house and on college campuses.

Satisfactory union agreements were concluded at many locations including headquarters where the largest number are employed. No man-days were lost as a result of strikes. Total employment was approximately 14,000 at year end.

Mr. William W. Evans, Director of the Marketing Division, and Mr. Robert C. Straka, Jr. were elected Vice Presidents. Mr. Robert H. Quayle, Jr. joined the Company as Assistant Director of Corporate Planning.

Mr. John A. Williamson, Vice President and European Director, retired. Mr. Myron Cory, President of Graphite Products Division, died and was succeeded by Mr. Henry M. Killmar.



## *Board of Directors*

Thomas H. Beddall, Jr.  
Governor and Vice President,  
T. Mellon and Sons

Clifford C. Furnas  
President,  
Western New York Nuclear Research  
Center, Inc.

T. Vincent Learson  
President,  
International Business Machines Corporation

Willard F. McCormick  
Senior Partner,  
Cresap, McCormick and Paget

Leon A. Patt  
Group Vice President,  
The Carborundum Company

Nathan W. Pearson  
Governor and Vice President,  
T. Mellon and Sons

Clarence D. Shepard  
Chairman of the Board,  
The British American Oil Company, Limited

William H. Wendel  
President,  
The Carborundum Company

*Independent Accountants*  
Price Waterhouse & Co.

*Transfer Agent*  
The Chase Manhattan Bank, New York

*Registrar*  
First National City Bank, New York

## *Officers*

William H. Wendel  
President

Leon A. Patt  
Group Vice President,  
International Operations

John F. Claydon  
Group Vice President,  
Abrasives

Robert W. Lear  
Group Vice President,  
Resistant Materials

William W. Evans  
Vice President,  
Marketing

Donald G. Sturges  
Vice President,  
Research and Development

Alan Wolfley  
Vice President,  
Finance

Niles C. Bartholomew  
Vice President,  
Corporate Planning

William J. Ehlers  
Vice President,  
Personnel

Edward A. Montgomery  
Vice President,  
Secretary and General Counsel

Arden M. MacDonald  
Vice President and General Manager,  
Electro Minerals Division

Paul W. Joy  
Vice President and General Manager,  
Coated Abrasives Division

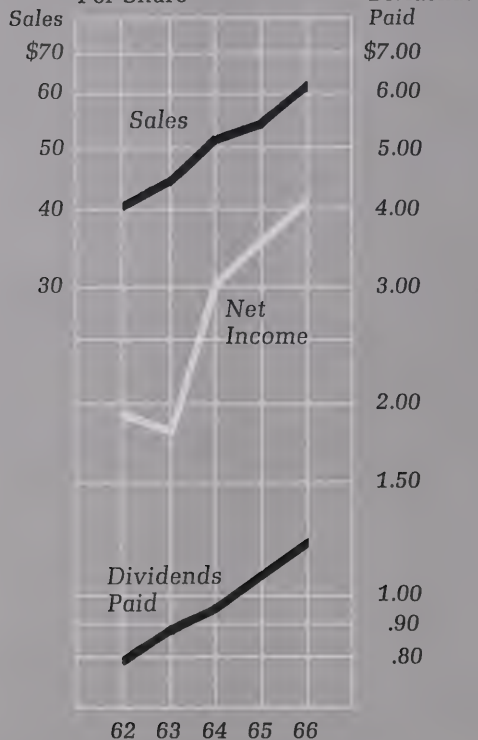
Frederick J. Ross, Jr.  
Vice President and General Manager,  
Bonded Abrasives Division

Robert C. Straka, Jr.  
Vice President and General Manager,  
Refractories and Electronics Division

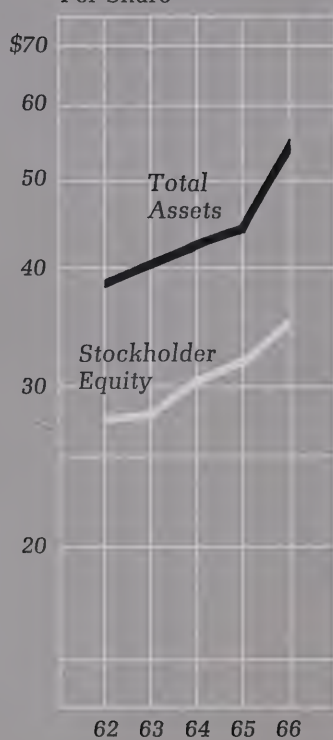
Gilbert J. Stewart  
Treasurer



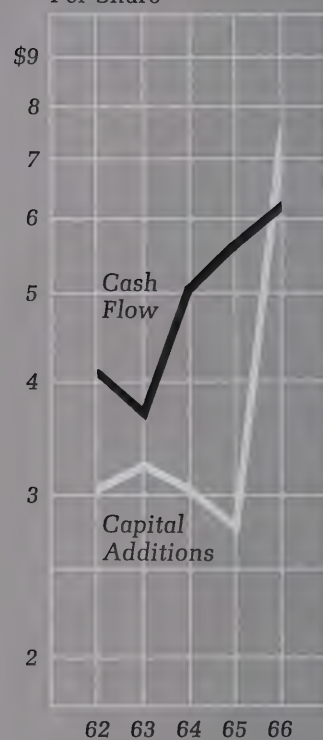
**Sales, Net Income and Dividends Paid Per Share**



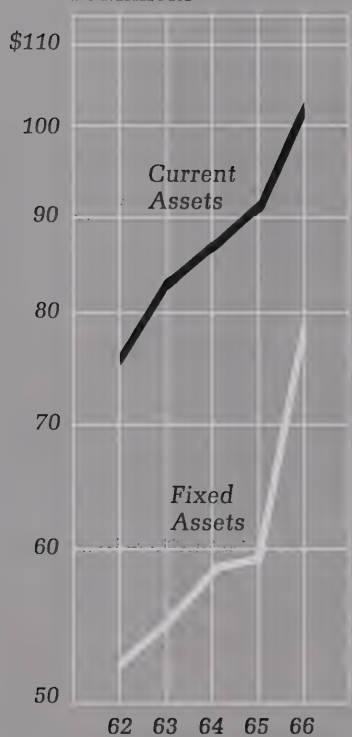
**Total Assets and Stockholder Equity Per Share**



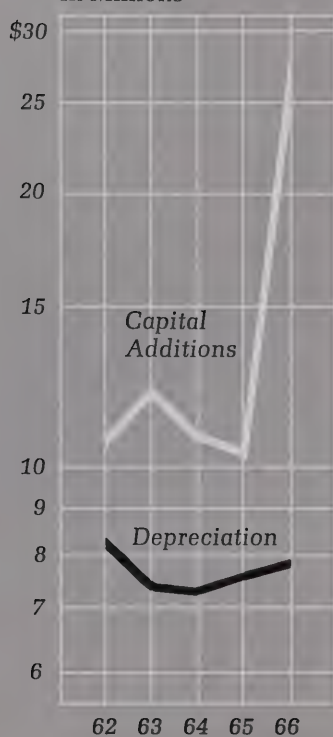
**Cash Flow and Capital Additions Per Share**



**Current and Net Fixed Assets In Millions**



**Capital Additions and Depreciation In Millions**



**Net Income as a Per Cent of Sales and the Return on Stockholder Equity**





## Financial Record

For the third consecutive year both sales and income improved. Record sales in 1966 of \$230,602,000 and net income after taxes of \$15,309,000 were 14% above the highs set last year. With adjustment for the 2 for 1 stock split made in April, net income per share was \$4.21 in 1966 compared to \$3.69 in 1965. At December 31, 1966 there were 3,638,774 common shares outstanding, an increase of less than 1%. Return on net worth advanced to 11.8%. The investment tax credit added ten cents per share to net income.

Significant gains were recorded by the Resistant Materials group, producing electronic components, papermakers' felts, refractories, carbon and graphite. Noteworthy advances were also made in abrasive systems wherein industrial machinery and abrasives are sold as a package.

The Company's share of non-consolidated subsidiaries' sales was \$21,100,000 in 1966 and \$18,800,000 in 1965. Investments in these companies are carried at cost and income is recorded as received. The results to Carborundum from the operations of these companies, after deducting applicable foreign income taxes, is shown in the following tabulation:

	1966	1965
Recorded as income		
Dividends received	\$127,000	\$100,000
Interest, royalties and technical fees	490,000	300,000
Total	\$617,000	\$400,000
Per share	17¢	12¢
Not recorded as income		
Company's share of undistributed net income	\$667,000	\$617,000
Per share	18¢	17¢

The two largest units are Harbison-Carborundum, a leading manufacturer of fused cast refractory materials, and Carborundum Metals Climax, the pioneer producer of zirconium and hafnium used for nuclear reactors.

Loans more than doubled in 1966. Capital additions required more than \$27 million. Depreciation accruals amounted to \$7,800,000.

Inventory and accounts receivable increased approximately in proportion to the expanding volume of business.

In April the quarterly dividend rate was raised for the fourth successive year to 32½¢ per share. Dividend payments in 1966 were \$1.27½ per share compared to \$1.10 per share in 1965 and \$.95 in 1964.

The Company exceeded United States balance of payments goals. At mid-year a new subsidiary, Carborundum Overseas Corporation, was formed for the purpose of borrowing abroad and investing in or lending funds to other Carborundum entities.

Carborundum is in compliance with the opinions dealing with improved standards of financial reporting issued during the year by the Accounting Principles Board of the American Institute of Certified Public Accountants.

For units of the Company with a long manufacturing cycle, backlogs at year end were greater than last year.

Where risk of devaluation of foreign currencies exists, the Company continues to hedge its investment whenever possible.

Capital turnover was at an all-time high, making the Company's money work as hard as its people and plants.

## Statement of Consolidated Income

Years Ended December 31	1966		1965	
	Amount	Percent	Amount	Percent
Net sales	\$230,602,000	100.0%	\$202,502,000	100.0%
Cost of products sold	142,519,000	61.8	123,247,000	60.9
Gross margin	\$ 88,083,000	38.2	\$ 79,255,000	39.1
Selling, administrative and general expenses	59,086,000	25.6	53,426,000	26.4
Operating income	\$ 28,997,000	12.6	\$ 25,829,000	12.7
Other income and (expense)				
Interest and other income	\$ 1,612,000	0.7	\$ 1,326,000	0.6
Interest expense	(1,066,000)	(0.5)	(701,000)	(0.3)
Foreign exchange adjustments	(73,000)	—	(623,000)	(0.3)
Total other income and (expense)	\$ 473,000	0.2	\$ 2,000	—
Income before taxes on income	\$ 29,470,000	12.8	\$ 25,831,000	12.7
Taxes on income	14,161,000	6.2	12,430,000	6.1
Net income	\$ 15,309,000	6.6%	\$ 13,401,000	6.6%
Net income per share*	\$ 4.21		\$ 3.69	
Dividends per share*	\$ 1.27½		\$ 1.10	

\*1965 adjusted for 2 for 1 stock split in April 1966.

## Statement of Consolidated Income Reinvested in the Business

Income reinvested in the business at beginning of year	\$ 90,095,000	\$ 80,692,000
Net income	15,309,000	13,401,000
	\$105,404,000	\$ 94,093,000
Dividends on common stock paid in cash	4,638,000	3,998,000
Income reinvested in the business at end of year	\$100,766,000	\$ 90,095,000

## Opinion of Independent Accountants

To the Stockholders of The Carborundum Company:

In our opinion, the accompanying consolidated balance sheet and the related consolidated statements of income, income reinvested in the business, and funds flow present fairly the financial position of The Carborundum Company and its subsidiaries at December 31, 1966, the results of their operations and the supplementary information on funds flow for the year, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year. Our examination of these statements was made in accordance with generally accepted auditing standards and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

Price Waterhouse & Co.

Buffalo, New York  
February 14, 1967



# Consolidated Balance Sheet

December 31	1966	1965
<b>Assets</b>		
<b>Current Assets</b>		
Cash, including time deposits of \$7,066,000 and \$4,812,000 respectively	\$ 13,258,000	\$ 11,309,000
Marketable securities at cost and accrued interest, which approximates market	—	2,919,000
Accounts receivable, less allowance for losses	37,255,000	31,985,000
Inventories (Note 2)	52,060,000	43,526,000
Prepayments, principally insurance and taxes	811,000	730,000
<b>Total Current Assets</b>	<b>\$103,384,000</b>	<b>\$ 90,469,000</b>
<b>Investments and Other Assets</b>		
Investments and advances—non-consolidated subsidiaries and associated companies (Note 3)	\$ 12,309,000	\$ 11,341,000
Sundry investments and other assets (Note 4)	5,531,000	4,188,000
<b>Total Investments and Other Assets</b>	<b>\$ 17,840,000</b>	<b>\$ 15,529,000</b>
<b>Properties, Plants and Equipment, Net (Note 5)</b>	<b>\$ 79,068,000</b>	<b>\$ 59,959,000</b>
<b>Total Assets</b>	<b>\$200,292,000</b>	<b>\$165,957,000</b>
<b>Liabilities and Stockholders' Equity</b>		
<b>Current Liabilities</b>		
Notes payable to banks	\$ 3,186,000	—
Current portion of long-term debt	1,186,000	\$ 1,000,000
Accounts payable and other liabilities	23,699,000	18,965,000
Taxes on income	12,348,000	11,625,000
<b>Total Current Liabilities</b>	<b>\$ 40,419,000</b>	<b>\$ 31,590,000</b>
<b>Long-Term Debt and Other Liabilities</b>		
Long-term debt (Note 6)	\$ 25,225,000	\$ 12,000,000
Other long-term liabilities (Note 7)	4,737,000	3,206,000
<b>Total Long-Term Debt and Other Liabilities</b>	<b>\$ 29,962,000</b>	<b>\$ 15,206,000</b>
<b>Stockholders' Equity (Note 9)</b>		
Preferred Stock, par value \$10 a share 2,500,000 shares authorized but unissued	0	0
Common Stock, par value \$3 a share Authorized 7,500,000 shares; issued 3,668,924 shares at December 31, 1966	\$ 11,007,000	\$ 12,218,000
Capital in excess of par value	18,733,000	17,443,000
Income reinvested in the business	100,766,000	90,095,000
	<b>\$130,506,000</b>	<b>\$119,756,000</b>
Less — Common Stock held in treasury, at cost — 30,150 shares	595,000	595,000
<b>Total Stockholders' Equity</b>	<b>\$129,911,000</b>	<b>\$119,161,000</b>
<b>Total Liabilities and Stockholders' Equity</b>	<b>\$200,292,000</b>	<b>\$165,957,000</b>

# Consolidated Statement of Funds Flow

(in millions of dollars)

Years Ended December 31	1966	1965	1964	1963	1962
<b>Funds available at beginning of year</b>					
Cash	\$11.3	\$15.2	\$13.9	\$11.1	\$ 8.6
Marketable securities	2.9	1.2	4.1	5.8	13.9
Total	\$14.2	\$16.4	\$18.0	\$16.9	\$22.5
<b>Funds provided</b>					
Net income before depreciation	\$23.1	\$21.0	\$18.6	\$13.8	\$15.3
Sale of fixed assets	0.2	2.1	0.7	1.0	0.5
Sale of common stock under option plan	0.1	0.1	0.6	0.2	0.4
Increase in					
Other current liabilities	5.5	3.0	5.9	0.6	—
Outside borrowings	16.6	—	—	5.1	—
Other long-term liabilities	1.5	0.9	0.3	0.2	0.2
Decrease in investments and other assets	—	—	0.4	0.5	—
Total	\$47.0	\$27.1	\$26.5	\$21.4	\$16.4
<b>Funds expended</b>					
Spent for properties, plants and equipment	\$27.1	\$10.4	\$11.2	\$12.0	\$11.2
Dividends	4.6	4.0	3.4	—	—
Increase in					
Receivables	5.3	4.1	4.6	—	1.0
Inventories	8.5	1.7	1.1	—	—
Investments and other assets	2.4	7.1	—	—	—
Decrease in					
Other current liabilities	—	—	—	—	0.6
Outside borrowings	—	2.0	7.8	—	0.8
Total	\$47.9	\$29.3	\$36.1	\$21.3	\$22.0
<b>Funds available at end of year</b>					
Cash	\$13.3	\$11.3	\$15.2	\$13.9	\$11.2
Marketable securities	—	2.9	1.2	4.1	5.8
Total	\$13.3	\$14.2	\$16.4	\$18.0	\$16.9



## Five Year Comparison

	1966	1965	1964	1963	1962
<b>Selected Operating Data</b> (in millions of dollars)					
Sales	\$ 230.6	\$ 202.3	\$ 194.6	\$ 162.2	\$ 150.3
Pre-tax income	29.5	26.3	22.7	13.8	13.9
Net income	15.3	13.4	11.2	6.4	7.0
Depreciation and amortization	7.8	7.6	7.5	7.4	8.3
Cash flow	23.1	21.0	18.0	13.8	15.3
Dividends paid	4.6	3.0	3.3	3.2	2.9
Spent for properties, plants and equipment	27.1	18.0	13.2	12.0	11.2
Increase in investments in and advances to non-consolidated subsidiaries and associated companies	\$ 1.0	\$ 5.5	\$ 10.0	\$ 1.1	\$ 1.2

<b>Selected Year-End Balances</b> (in millions of dollars)					
Current assets	\$ 103.4	\$ 90.7	\$ 86.7	\$ 82.0	\$ 70.4
Current liabilities	40.4	32.8	28.0	25.7	22.4
Working capital	63.0	57.9	58.7	56.3	48.0
Properties, plants and equipment, net	79.1	103.0	92.1	80.2	69.7
Total assets	200.3	193.7	178.8	167.2	140.1
Long-term debt	25.2	32.0	32.0	17.2	10.4
Stockholders' equity	\$ 129.9	\$ 161.7	\$ 146.8	\$ 150.0	\$ 129.7

<b>Selected Ratios and Employee Data</b>					
Working capital ratio	2.6:1	2.9:1	2.9:1	3.0:1	3.6:1
Stockholders' equity to long-term debt ratio	5.2:1	9.9:1	8.4:1	5.9:1	6.0:1
Net income as a percent of:					
Sales	6.6%	6.6%	6.1%	3.9%	4.7%
Stockholders' equity	11.8%	11.2%	10.3%	6.3%	7.2%
Long-term debt and stockholders' equity	9.9%	10.2%	9.1%	5.4%	6.1%
Depreciation as a percent of:					
Sales	3.4%	3.8%	4.0%	4.6%	5.5%
Average gross fixed assets	5.5%	5.8%	5.4%	5.8%	6.8%
Reserves for depreciation as a percent of gross fixed assets	52.8%	57.6%	59.6%	59.1%	59.7%
Average number of employees	13,259	11,614	11,010	11,186	11,100
Sales per employee	\$17,400	\$17,400	\$16,800	\$14,500	\$13,500

<b>Selected Share Data*</b>					
Common shares outstanding in thousands	3,639	3,635	3,635	3,604	3,591
On a per common share basis:					
Quarterly dividend rate at year end	\$ .321½	\$ .30	\$ .29	\$ .22½	\$ .20
Net income	\$ 4.21	\$ 3.69	\$ 3.10	\$ 1.77	\$ 1.97
Cash flow	\$ 6.35	\$ 5.78	\$ 5.12	\$ 3.84	\$ 4.29
Dividends paid	\$ 1.27½	\$ 1.10	\$ .95	\$ .90	\$ .80
Stockholders' equity	\$ 35.70	\$ 32.78	\$ 30.90	\$ 28.10	\$ 27.20

\*Years 1962-1965 adjusted for 2 for 1 stock split in April 1966.

## Notes to the Financial Statements

1. *Consolidation*—Consolidated statements include all majority-owned subsidiaries except two in Brazil excluded because of unsettled economic conditions and currency exchange restrictions. Net assets of approximately \$39,500,000 were outside of North America. Properties, plants and equipment, and depreciation accounts have been translated to U.S. dollars based upon rates of exchange prevailing when the assets were acquired. Other accounts were translated generally at exchange rates prevailing at the end of the year.

2. *Inventories*—Inventories are stated at the lower of cost or market. Cost of inventories aggregating \$21,532,000 was determined by the last-in, first-out (Lifo) method of accounting, and the balance of the inventories is stated at current cost.

3. *Investments and Advances—Non-Consolidated Subsidiaries and Associated Companies*—Investments are carried at cost, \$9,518,000 which compares with equity in their net assets of approximately \$12,883,000 at December 31, 1966.

4. *Sundry Investments and Other Assets*—Sundry investments and other assets are comprised principally of non-current receivables, deposits, and trademarks, patents and processes.

### 5. Properties, Plants and Equipment, at Cost

	1966	1965
Land and mineral rights, less amortization	\$ 2,884,000	\$ 2,682,000
Buildings	51,043,000	45,724,000
Machinery and equipment	97,492,000	86,776,000
Construction in progress	16,134,000	6,244,000
	\$167,553,000	\$141,426,000
Less depreciation and amortization	88,485,000	81,467,000
	\$ 79,068,000	\$ 59,959,000

Depreciation and amortization charged to income was \$7,814,000 in 1966 and \$7,605,000 in 1965.

6. *Long-Term Debt*—At December 31, 1966, long-term debt consisted of:

4½% note payable to an insurance company in 1967-1976 at a rate of not less than \$1,000,000 a year \$12,000,000

Notes payable to banks:

In U.S. funds

At prime rate of interest payable in 1971 3,000,000

At 5-6% interest of which \$5,562,000 is payable in 1967-1971 6,583,000

In foreign currency

At 6-7% interest payable in Swiss francs due \$2,785,000 in 1968 and \$1,495,000 in 1969 4,280,000

At 6% interest payable in Canadian funds in 1967-1970 548,000

Total long-term debt \$26,411,000

Less current portion 1,186,000

\$25,225,000

Maturities of long-term debt in the four years subsequent to 1967 are: \$4,077,000 in 1968, \$3,790,000 in 1969, \$2,204,000 in 1970 and \$7,132,000 in 1971.

7. *Other Long-Term Liabilities*—Other long-term liabilities include principally the deferred portion of management incentive compensation and liabilities of foreign subsidiaries for pensions and taxes not currently payable.

8. *Pension Plans*—Trusted and insured retirement plans cover substantially all employees of The Carborundum Company and its subsidiaries. In addition, payments are made to certain retired employees not under specific plans. The plans in general are on a non-contributory basis, with options for additional benefits on a contributory basis.

Total pension costs funded and charged to expense amounted to \$3,828,000 in 1966 and \$3,504,000 in 1965, and included contributions for past service benefits of \$1,402,000 and \$1,321,000 respectively. Past service benefits under the various plans are funded principally over a 20 year period.

Unfunded past service benefits under pension plans increased during the year by \$960,000 resulting from revision of certain plans, and amounted to approximately \$18,000,000 at December 31, 1966.

9. *Stockholders' Equity*—In April 1966 the stockholders approved the following changes in the Company's capital stock: (1) The authorized preferred stock was increased from 100,000 shares of the par value of \$100 each to 2,500,000 shares of the par value of \$10 each; (2) The authorized common stock was increased from 2,500,000 shares of the par value of \$5 each to 7,500,000 shares of the par value of \$3 each; and (3) Upon such change, each outstanding share of \$5 par value common stock was split into two shares of \$3 par value common stock. As a result of the above change, \$1,221,000 was transferred from common stock account to capital in excess of par value.

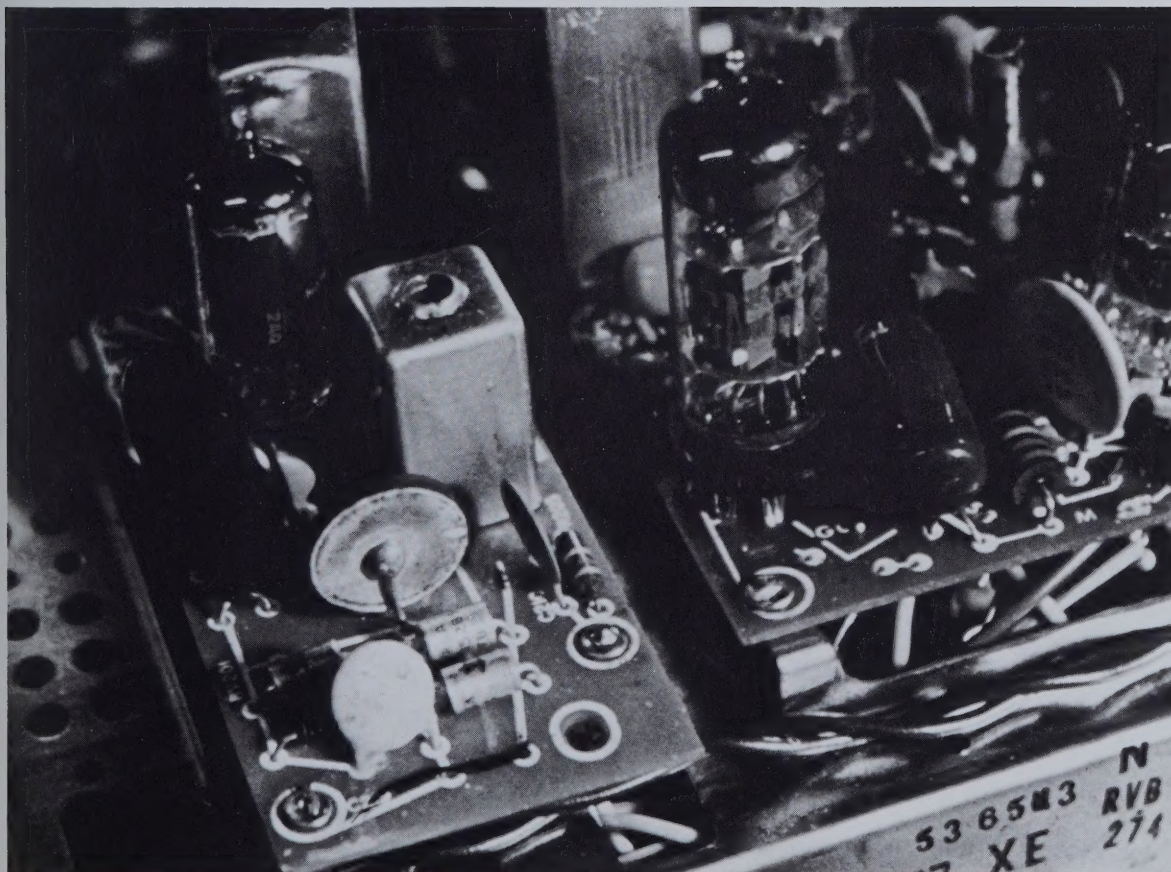
In 1966 the stockholders also approved a plan providing for the granting of options to executives within ten years for the purchase of an additional 100,000 shares of the Company's \$3 par value common stock. At December 31, 1966, certain executives held options under stock option plans to purchase 38,468 shares of common stock in the years 1967-1971 at prices ranging from \$22.63 to \$45.13 per share. At that date, options for 13,168 shares were exercisable, and 89,300 shares were available for granting additional options. During 1966 options were granted to purchase 10,700 shares at \$37.19 per share, options for 1,400 shares were cancelled and options were exercised for 3,400 shares at prices from \$22.63 to \$33.25 per share. Of the total consideration received, \$10,000 was added to common stock and \$69,000 to capital in excess of par value. The above amounts have been adjusted where required to reflect the 2 for 1 stock split effective April 1966.

Under the provisions of the insurance company and bank loan agreements, \$30,330,000 of consolidated income reinvested in the business at December 31, 1966 was unrestricted as to payment of cash dividends. Reinvested income includes amounts capitalized or transferred to statutory reserves by certain foreign subsidiaries.



10. *Commitments*—Subsequent to December 31, 1966, the Company acquired for cash the operating assets of a company for \$991,000, approximately 90% of the common stock of another corporation for \$8,800,000 and 100% of the common stock of a third company for \$588,000. Additional bank borrowings were made to finance these acquisitions.

*Carborundum's electronic components were used in the automatic degaussing circuit of 60 to 70 percent of the color television sets manufactured in the United States during 1966.*







These Carborundum packages were among the 98 best packages designed in the United States and chosen by the United States Information Agency for inclusion in "Graphics U.S.A.", a show now touring Japan and the Far East.

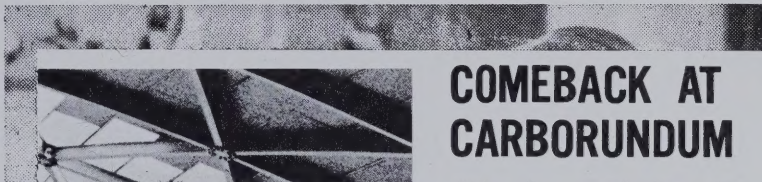


THE NEW YORK TIMES, SUNDAY, FEBRUARY 5, 1967.

## Personality: Chief Carborundum Strategist

Wendel Looks Ahead  
and Gives Controls  
to the Officers

By ROBERT A. WRIGHT  
William H. Wendel sees his



## COMEBACK AT CARBORUNDUM

*It has been moving out of its  
traditional boom-and-bust field.*

*"Why was your company named Carbo-  
rundum?"*

*"By mistake."*

*"By mistake?"*

# DUN'S REVIEW

# BUSINESS WEEK

July 23, 1966

## Carborundum

Its acquisition of a manufacturer of fine chi  
search for a consumer image. This, plus otl  
imaginative ventures, is taking it far afield

## Carborundum drives for diversification

Niagara Falls, N. Y.

While carbon and graphite products

# Purchasing Week

## Coated fiber fights flame

## How global thinking pays off at Carborundum

BUSINESS ABROAD/FEBRUARY 6, 1967

Overseas profits of this worldwide abrasives  
producer began to skyrocket after it closed its  
Geneva headquarters and centralized  
control of international operations at Niagara Falls

In 1770,  
ing fine  
England.

Leon A. Patt, group vice president for  
international operations at Carborun-  
dum Corp., is one of the most highly  
organized executives around. He has  
to be With the help of one assistant

## Strengthening a Company Image

Compiling its most effective graphic elements,  
Carborundum's ambitious design manual  
details how they are to be used.

## Abrasive Maker's Systems Approach Opens New Markets

**STEEL**  
FEATURES

CARBORUNDUM







CARBORUNDUM

